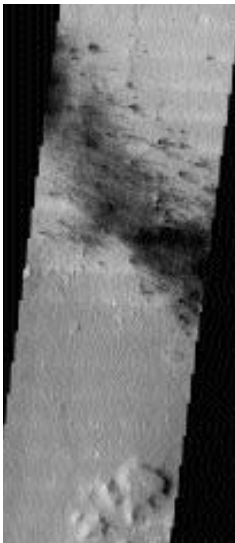


## 'Spirit' rises toward Mars

Second rover preps for June 26 liftoff  
*By Guy Webster*



Gusev Crater, landing site for the Spirit rover, as imaged this month by 2001 Mars Odyssey. The wispy dark streaks probably arise from the removal by wind of a layer of bright dust.

Following a couple of days' delay due to weather, a NASA robotic geologist named Spirit began its seven-month journey to Mars June 10 when its Delta II launch vehicle thundered aloft from Cape Canaveral Air Force Station, Fla.

The spacecraft, first of a twin pair in NASA's Mars Exploration Rovers project, separated successfully from the Delta's third stage about 36 minutes after launch, while over the Indian Ocean. Flight controllers at JPL received a signal from the spacecraft at 11:48 a.m. Pacific time via the Canberra, Australia, antenna complex of the Deep Space Network.

The project announced on Thursday, June 12, that Spirit successfully reduced its spin rate as planned and switched to celestial navigation using a star scanner.

All systems on the spacecraft were reported to be in good health. As of 48 hours after the launch, Spirit had traveled 5,630,000 kilometers (3.5 million miles) and was at a distance of 610,000 kilometers (380,000 miles) from Earth.

After separation from the third stage of its Delta II launch vehicle on June 10, Spirit was spinning 12.03 rotations per minute. Onboard thrusters were used June 11 to reduce the spin rate to approximately 2 rotations per minute, the designed rate for the cruise to Mars. After the spinning slowed, Spirit's star scanner found stars that are being used as reference points for spacecraft attitude.

Navigators and other flight team members at JPL will be deciding soon when to perform the first of several trajectory-correction maneuvers planned during the seven-month trip between Earth and Mars.

"We have plenty of challenges ahead, but this launch went so well, we're delighted," said JPL's Pete Theisinger, project manager for the Mars Exploration Rovers.

Spirit is due to land on Mars on Jan. 4, 2004, Universal Time (Jan. 3 in the United States), and will roam an area called Gusev Crater, which bears evidence of a wet history. The rover will examine rocks and soil for clues to whether the site may have been a hospitable place for life.

Gusev is an attractive landing site because of a 900-kilometer-long

(550-mile) meandering valley that enters the crater from the south-east. This valley is believed to have been eroded long ago by flowing water. The water likely cut through the crater's rim and filled much of the crater, creating a large lake not unlike current crater lakes here on Earth. The lake is gone now, but the floor of Gusev Crater may contain water-laid sediments that still preserve a record of what conditions were like in the lake when the sediments were deposited.

Spirit's twin, Opportunity, is being prepared for launch as early as 12:27 a.m. Eastern time June 26 (9:27 p.m. Pacific time on June 25), and will be targeted to Meridiani Planum, near Mars' equator and halfway around the planet from Gusev.

Opportunity has been hoisted atop the Boeing MER-B Delta II Heavy launch vehicle at Kennedy Space Center. Installation of the fairing around the spacecraft is scheduled for June 21, and fueling of

the Delta second stage with its complement of storable propellants is planned for June 23.

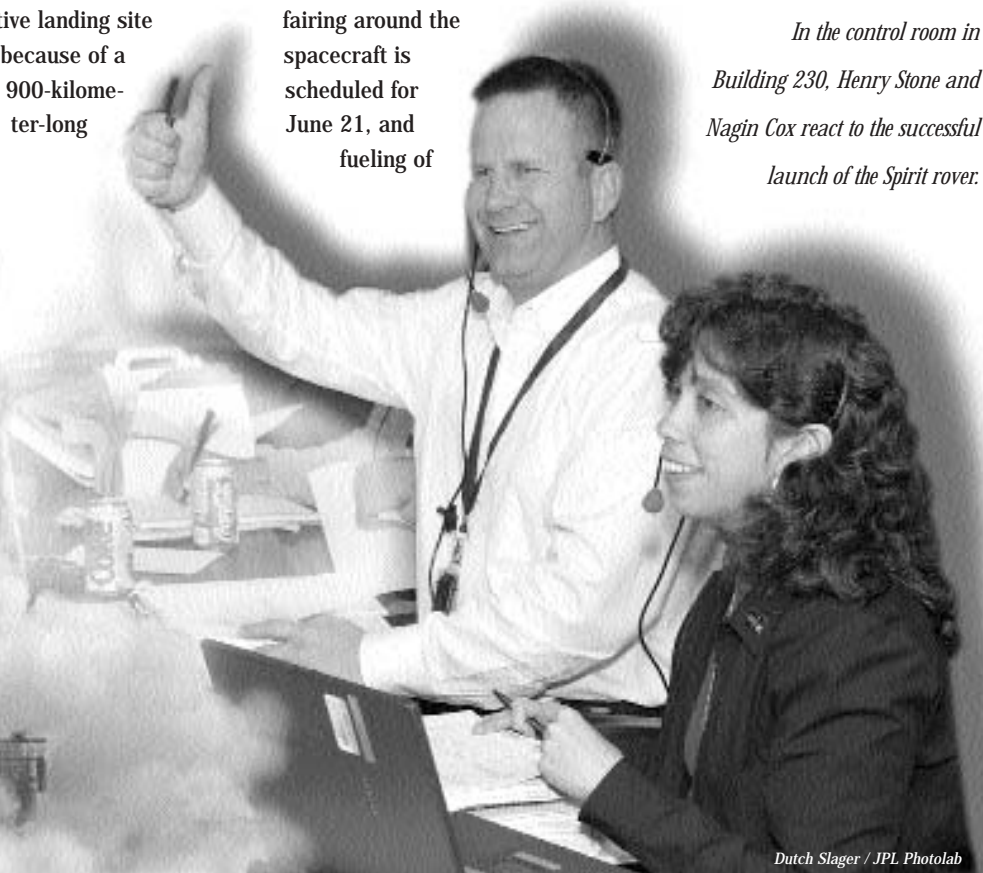
The rovers' cruise through space comes at a time when Mars and Earth will be closer together than at any time in many thousands of years.

"Mars is closer to the Earth than it has been in approximately 73,000 years. I find that an amazing number," said JPL's Nagin Cox, deputy chief of the mission's spacecraft/rover engineering team.

"We're close enough and the geometry works out that we have an excellent data return," she said. "That means we can bring more pictures, more information about Mars back to the people of Earth."

Information about the rovers and the scientific instruments they carry is available online at <http://mars.jpl.nasa.gov/mer>.

*In the control room in Building 230, Henry Stone and Nagin Cox react to the successful launch of the Spirit rover.*



KSC-03PD-1890

Dutch Slager / JPL Photolab

## Rovers named 'Spirit' and 'Opportunity'



KSC-03PD-1852

TWIN ROBOTIC GEOLOGISTS NASA IS SENDING TO Mars will embody in their newly chosen names—Spirit and Opportunity—two cherished attributes that guide humans to explore.

NASA Administrator Sean O'Keefe and 9-year-old Sofi Collis, who wrote the winning essay in a naming contest, unveiled the names June 8 at NASA's Kennedy Space Center, two days prior to the launch of the first rover, Spirit. "Now, thanks to Sofi Collis, our third grade explorer-to-be from Scottsdale, Ariz., we have names for the rovers that are extremely worthy of the bold mission they are about to undertake," O'Keefe said.

Sofi read her essay: "I used to live in an orphanage. It was dark and cold and

lonely. At night, I looked up at the sparkly sky and felt better. I dreamed I could fly there. In America, I can make all my dreams come true. Thank you for the 'Spirit' and the 'Opportunity.'"

Hers was selected from nearly 10,000 entries in the contest sponsored by NASA and the Lego Co., a Denmark-based toymaker, with collaboration from the Planetary Society, based in Pasadena.

Sofi was born in Siberia. At age 2, she was adopted by Laurie Collis and brought to the United States. "She has in her heritage and upbringing the soul of two great spacefaring countries," O'Keefe said. "One of NASA's goals is to inspire the next generation of explorers. Sofi is a wonderful example of how that next generation also inspires us."

Sofi's dream of flying now takes the form of wanting to become an astronaut. Meanwhile, she enjoys playing with her older sister, swimming, reading Harry Potter stories, and her family's three dogs and one cat.

"The early days of space exploration stimulated the creativity of an entire generation, expanded our imagination and encouraged us to push our limits, making us better and braver human beings," noted Lego President Kjeld Kirk Kristiansen. "With this project, the Lego Co. wants to bring part of that magic back. Everything we do is aimed at giving children that same power to create, and by involving children in the Name the Rovers Contest and other related playful learning activities, we hope to motivate and inspire the next generation of explorers."

*Contest winner Sofi Collis shares a light moment with NASA Administrator Sean O'Keefe at a press conference.*

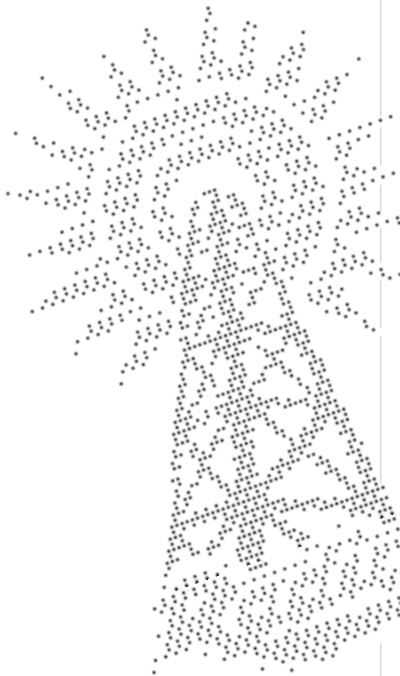


# News Briefs

Photo courtesy of Karla Warner



From left: Congressman  
Jerry Lewis, Tom Meseroll of  
Honeywell, Rick Piercy  
of the Lewis Center.



## GAVRT receives donation

The Goldstone Apple Valley Radio Telescope (GAVRT) project, which gives students an opportunity to use a 34-meter antenna previously used in the Deep Space Network, recently received a \$5,000 donation from AlliedSignal/Honeywell, which maintains the structure.

GAVRT, based at the Lewis Center for Educational Research in Apple Valley, is a partnership between the Lewis Center, NASA, JPL and Honeywell.

“Honeywell wholeheartedly supports NASA’s mission to communicate the relevancy of science in everyday life, for students, teachers and parents,” said TOM MESEROLL, Honeywell’s senior executive for Pasadena operations.

“Private partnerships are important to the Lewis Center and the GAVRT project,” said RICK PIERCY, the founder, president and chief executive officer of the Lewis center. “This is where students learn science at young ages and receive their love for learning. We would like to thank Honeywell for their long-time partnership with the Lewis Center and for their contribution to bringing the universe to America’s classrooms.”

Also in attendance was Congressman JERRY LEWIS (R-Redlands), for whom the research center is named.

## Radio clubs’ field day June 28–29

The JPL and Caltech Amateur Radio Clubs will join forces to set up Field Day City on the peak of Mount Gleason the weekend of June 28.

This annual event is designed to test amateur radio operator readiness to provide emergency communications support when normal communications capabilities are either over-stressed or inoperable. Ham radio operators have traditionally provided this type of support during emergencies like tornadoes, hurricanes, floods and wildfires.

The clubs plan to operate four stations, and the effort will include voice and Morse code. Also featured will be popular tutored operations for those wishing to try out amateur radio.

Mount Gleason is located 30 miles north of JPL by car and can be reached via Angeles Crest Highway.

Operations start at 11 a.m. on June 28 and run for 24 hours. For more details, call BOB POLANSKY at ext. 4-4940 or JAY HOLLADAY at 4-7758.

## Sign up for conference by July 1

Registration is now available through July 1 for the International Conference on Space Mission Challenges for Information Technology, to be held July 14-16 at the Pasadena Conference Center. The event is the first forum to gather system designers, engineers, scientists, practitioners and space explorers for the objective of advancing information

technology for space missions.

The forum will provide an excellent opportunity for fostering technical interchange on all hardware and software aspects of information technology applications in space missions. The focus will be current information technology practices and challenges as well as emerging information technologies with applicability for future missions.

The event is sponsored by JPL’s Center for Space Mission Information and Software Systems Center of Excellence. Register at <http://smc-it.jpl.nasa.gov>.

## You’ve got mail ... or do you?

Are you receiving your mail late? Missing important announcements? Does your mail get bounced around looking for you? Could it be because your mail stop is listed incorrectly?

To avoid such problems, ED CONTRERAS of the JPL Mail Center recommends the following steps immediately after you change your mail stop:

- Notify your correspondents (both internal and external) of your new mail stop;
- Ask your section administrator or secretary to update Perform (the JPL personnel database), which is the source for the Mail Center’s mail stop information;
- If applicable, notify the Caltech credit union separately of your new mail stop because the credit union does not use Perform;
- If applicable, fill out a change of address card for all external magazines and catalogs that you receive at JPL (if you don’t notify them, the Mail Center may return your items to the sender, which takes time and costs money);
- Remember to give your mail stop, not your office number.

In addition, employees in charge of sorting mail at its final destination can help the Mail Center by marking “No Longer Here” on all items delivered to personnel who have left JPL. This permits Mail Center employees to return mail to the U.S. Postal Service.

Taking these steps will help ensure that you receive your mail as quickly as possible and will help eliminate unnecessary costs at the Mail Center.

## Mentoring program seeks secretaries

JPL’s Office Professionals Mentoring Group, which works to identify secretarial needs and gather appropriate resources, is now accepting applications for its July 2003 program.

The application for participation in the program is located online at <http://hr/officepros>. Return applications to JOY HODGES, mail stop 301-486, by no later than Tuesday, July 8.

For more information, call Hodges at ext. 4-7041.



JPL’S CENTER FOR SPACE MISSION INFORMATION AND SOFTWARE SYSTEMS (<http://csmiss.jpl.nasa.gov>) seeks applicants for its Software Architect Program,

whose goal is to help train the next generation of software architects who will design and implement software for future JPL missions.

Software architects provide a system-level view of software across a project or program. They ensure that a consistent software architecture is utilized across missions, that all top-level software parts fit together, and that the appropriate methodologies, tools, practices and technologies are applied and utilized. They are an important part of the interface between technical (software engineers, software developers and testers, data engineers, data archive team, etc.) and managerial (customers, managers, scientists, hardware engineers, mission architects, etc.) considerations for a program or project.

The program is a half-time, one-year, paid internship. At least two candidates will be chosen each year to participate. The training, internship and other activities are funded by CSMISS.

CSMISS seeks applicants with strong technical and problem-solving skills, leadership in technical innovation, communication and mentoring skills, and software engineering, software management, and/or flight project experience. Selection of participants in the program will be determined by the individual qualities of the candidates and their fit into the overall goals of the program.

Applicants must be full-time, benefit-based JPL employees, possess a bachelor’s degree or equivalent experience and have a minimum of five years of work experience that includes a significant software engineering background and/or flight project experience.

Applicants for the FY2003 program must submit a resume and a one- or two-page letter, with concurrence by their division manager, stating why they should be considered. These two documents should be sent to the program coordinator, Brian Vickers, mail stop 301-225, by Thursday, July 3.

Applicants and their division manager should also retain copies. Interviews will be conducted throughout the month of July. All candidates will be informed of the selection decision by the end of August 2003.

For more information, contact the CSMISS information technologies workforce enrichment task lead, Trisha Jansma, at ext. 4-0647.

# Special Events Calendar

## Ongoing Support Groups

Alcoholics Anonymous—Meetings are available. Call the Employee Assistance Program at ext. 4-3680 for time and location.

Caregivers Support Group—Meets the first Thursday of the month at noon in Building 167-111 (The Wellness Place). For more information, call the Employee Assistance Program at ext. 4-3680.

Codependents Anonymous—Meeting at noon every Wednesday. Call Occupational Health Services at ext. 4-3319.

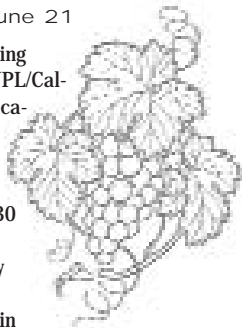
Gay, Lesbian and Bisexual Group—Meets the first Friday and third Thursday of the month at noon in Building 111-117. Call the Employee Assistance Program at ext. 4-3680 or Randy Herrera at ext. 3-0664.

Parents Group for Children With Special Needs—Meets the second Thursday of the month at noon in the Wellness Place, Building 167-111.

Working Parents Support Group—Meets the third Thursday of the month at noon in Building 167-111 (The Wellness Place). For more information, call the Employee Assistance Program at ext. 4-3680.

## Saturday, June 21

CEC Wine Tasting Benefit—The JPL/Caltech Child Educational Center will hold its annual fund-raiser from 6:30 to 11 p.m. at Caltech’s Avery House, 293 S. Holliston Ave. in Pasadena. The event will include fine wines, great food and live jazz music from the Chad Edwards Quartet. Guests may bid on unique auction items and take their chances at the gaming tables. All proceeds from the evening will directly benefit the nonprofit organization, which has been providing high-quality child care and educational outreach services since 1979. General admission tickets are \$35; Connoisseur tickets include entry into a private tasting room with premium wines, and are \$65. Tickets are available at the JPL Store and at the CEC, 140 Foothill Blvd. in La Cañada. Tickets may also be purchased at the door the evening of the event for an additional \$10. For more information, call ext. 4-3418.



## Sunday, June 22

“Mind Power: Fact, Fiction and Fakery”—Entertainer and writer Ian Rowland will appear at 2 p.m. in Caltech’s Baxter Lecture Hall in this Skeptics Society-sponsored event. Donations are \$5 for the Caltech/JPL community. For more information, call (626) 794-3119.

## Monday, June 23

Caltech Ballroom Dance Club—An eight-week summer session of salsa classes begins. Lessons are held in Dabney Lounge from 7:30 to 9 p.m., with practice time afterwards. Beginners are welcome. Refreshments served. Cost for non-students: \$8 per lesson, \$7 if all lessons are pre-paid at the start of the series.

## Tuesday, June 24

JPL Hiking + Club—A slide show titled “Utah, Between the National Parks” will be presented by Robert Powers of the JPL Library, who is also an amateur photographer, at noon in Building 238-543. The show will provide a tour of the varied environments in Utah and the Colorado plateau. You will see that the national parks are not the only areas of immense beauty in the American Southwest. Nonmembers are welcome.

## Wednesday, June 25

Investment Advice—Fidelity will provide one-on-one counseling. For an appointment, call (800) 642-7131.

JPL Toastmasters Club—Meeting at 5 p.m. in the 167 conference room. Call Roger Carlson at ext. 4-2295 for information.

Volunteer Professionals for Medical Advancement—Meeting at 10:30 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

## Thursday, June 26

Caltech Architectural Tour—The Caltech Women’s Club presents this free service, which is open to the public. The tour begins at 11 a.m. and lasts about 1 1/2 hours. Meet at the Athenaeum front hall, 551 S. Hill St. For reservations, call Susan Lee at (626) 395-6327.

JPL Golf Club—Meeting at noon in Building 306-302.

JPL Stories—JPL colleagues Robert Nelson and William Smythe will present “Discovery of Sulfur Dioxide on Jupiter’s Satellite Io: A Personal Perspective of Two Scientists,” at 4 p.m. in the Library, Building 111-104. If you have questions about the JPL Story series or wish to participate, call Teresa Bailey at ext. 4-9233.

## Saturday, June 28

Caltech Folk Music Society—Bluegrass musicians John Wilcox, Danny Wheelman and David West will perform at Caltech’s Dabney Hall Lounge at 8 p.m. Tickets are \$15 for adults and \$5 for children under 12. For more information, call (626) 395-4652 or visit <http://www.folkmusic.caltech.edu>.

## Wednesday, July 2

“X Prize: A Generation of Private Spaceships”—Dr. Peter Diamandis, chairman and chief executive officer, X Prize Foundation, and chief executive officer, Zero Gravity Corp., will lead this Caltech Management Association Leadership Forum at 4:45 p.m. in von Kármán Auditorium. The X Prize is a competition that offers \$10 million to the first privately funded team to build and fly a spaceship on two consecutive flights to 100-kilometer altitude carrying three adults. Currently, 24 teams from seven nations are competing, and a winner is expected in the next six to 12 months. In addition to the X Prize, a variety of other space tourism efforts is making space accessible to the public. One such effort is being led by Zero Gravity, which will soon be offering FAA-approved commercial parabolic flights. Diamandis will discuss the approaches the X Prize teams are taking, and their current status. For additional information, go online to <http://www.xprize.org> and <http://www.zerogcorp.com>. For more information about this event, e-mail [cma.announce@jpl.nasa.gov](mailto:cma.announce@jpl.nasa.gov) or call Michael Eastwood, ext. 4-9273.



## Thursday, July 3

Caltech Ballroom Dance Club—Summer tango classes begin an eight-week session in Dabney Lounge from 7:30 to 9 p.m., with practice time afterwards. Beginners are welcome. Refreshments served. Cost for non-students: \$8 per lesson, \$7 if all lessons are pre-paid at the start of the series.

## Ongoing

The Social Security representative will no longer offer one-on-one counseling appointments on Lab. Call the Benefits Office at ext. 4-3760 to arrange a telephone counseling appointment.

# Apply for Software Architect Program by July 3

The first overview analysis of a year's worth of high-resolution infrared data gathered by the Thermal Emission Imaging System (THEMIS) on JPL's Mars Odyssey spacecraft is opening Mars to a new kind of detailed geological analysis and revealing a dynamic planet that has experienced dramatic environmental change.

## Odyssey thermal data reveal a changing Mars

The report by THEMIS' science team will appear in an upcoming issue of *Science* and was released on June 5 in the magazine's online preview, *Science Express* (<http://www.sciencemag.org/sciencexpress/recent.shtml>).

"THEMIS is creating a set of data that is going to revolutionize our mapping of the planet and our idea of the planet's geology," said lead author and THEMIS Principal Investigator Philip Christensen of Arizona State University. "It will keep Mars scientists busy for the next 20 years trying to understand the processes that have produced this landscape."

THEMIS is providing planetary geologists with detailed temperature and infrared radiation images of the Martian surface. The images reveal geological details that were impossible to detect even with the high-resolution Mars Orbital Camera on JPL's Mars Global Surveyor and that have 300 times higher resolution than Global Surveyor's Thermal Emission Spectrometer. Among the significant findings noted in the report is the detection of layers in the Martian surface that indicate major changes in past environmental conditions.

"With a visible-light camera, I can take a picture of a lava flow, but even with the highest resolution cameras that we have today the smallest thing we can see is the size of a bus and in order to do geology I need to have more detail," said Christensen.

"The camera on Mars Global Surveyor takes exquisite images that show layers, but it doesn't tell me anything about composition—is it a layer of boulders with a layer of sand on top? I have no way of knowing. With the THEMIS temperature data, I can actually get an idea because the layers vary—and each layer has remarkably different physical properties," he said.

Daytime and nighttime temperature data can allow scientists to distinguish between solid rock and a variety of loose materials, from boulders to sand and dust. As any beach-goer knows, fine-grained sand heats up more rapidly at the surface than solid stone (which transmits more heat inward) but it also cools off more rapidly at night, when solid materials retain heat.

"We have seen layers, each with dramatically different physical properties, in places like Terra Meridiani," Christensen said. "Why do the physical properties in the different layers change? They change because the environment in which those rocks were deposited changed."

"It's very difficult to say exactly what happened in any particular place, but what we've found is that in many places on Mars it hasn't just been the same old thing happening for year after year for billions of years. These data have been so remarkable and so different from all of our previous experience that it has taken time to sift through the images and figure out what we're seeing."

Among the details that have stood out so far are kilometer-wide stretches of bare bedrock that Christensen notes were unexpected, given Mars' known dustiness. Large areas of exposed rock indicate that strong environmental forces are currently at work, "scouring" from the surface any past sediment as well as any new material that might be falling from the atmosphere.

Also unexpected is the finding that accumulations of loose rock are common on Martian hillsides, indicating recent processes of weathering continuing to affect the planet. "If those rocks had been made a

billion years ago, they'd be covered with dust," Christensen pointed out. "This shows a dynamic Mars—it's an active place."

However, despite Odyssey's past findings of significant Martian ice deposits, there are also indications that, in many places on the planet, water may not be one of the active causes behind the observed geological features.

Analyzing the spectra from the 10 different bands of infrared light the instrument can detect, the THEMIS team has begun to identify specific mineral deposits, including a significant layer of the mineral olivine near the bottom of a 4 1/2-kilometer deep canyon known as Ganges Chasma. Olivine, Christensen notes, is significant because it decomposes rapidly in the presence of water.

"This gives us an interesting perspective of water on Mars," he said. "There can't have been much water—ever—in this place. If there was groundwater present when it was deep within the surface, the olivine would have disappeared. And since the canyon has opened up, if there had ever been water at the surface it would be gone too. This is a very dry place, because it's been exposed for hundreds of millions of years. We know that some places on Mars have water, but here we see that some really don't."

Overall, Christensen notes that the emerging diversity and complexity of the planet point to the likelihood of future surprises and keep enlarging the possibilities for discovery on Mars.

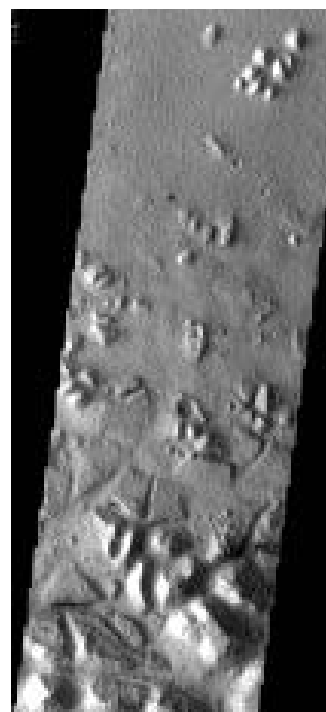
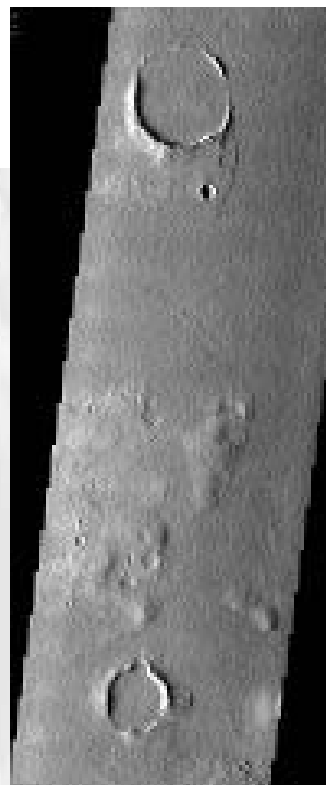
"With Odyssey, we are looking at Mars in its entirety, in context," he said. "It's remarkable how much this has already changed our view of the complexity and richness of the planet. We discovered that it has a really dynamic geologic history. It has far more ice and water than we thought—we're seeing snow and gullies, layers—and there are also processes involving volcanoes, impact craters and wind. It's a fascinating place."

In addition to Christensen, the authors on the paper include Anton Ivanov and Kenneth Nealson of JPL, along with Joshua Bandfield, James Bell, Noel Gorelick, Victoria Hamilton, Bruce Jakosky, Hugh Kieffer, Melissa Lane, Michael Malin, Timothy McConnochie, Alfred McEwen, Harry McSween, Greg Mehall, Jeffery Moersch, James Rice, Mark Richardson, Steven Ruff, Michael Smith, Timothy Titus and Michael Wyatt.

JPL manages the 2001 Mars Odyssey mission for NASA's Office of Space Science. Investigators at Arizona State University, the University of Arizona and NASA's Johnson Space Center, Houston, operate the science instruments. Additional science partners are located at the Russian Aviation and Space Agency and at Los Alamos National Laboratories, New Mexico. Lockheed Martin Astronautics, Denver, is the prime contractor for the project, and developed and built the orbiter. Mission operations are conducted jointly from Lockheed Martin and from JPL.

Additional information about 2001 Mars Odyssey is available on the Internet at <http://mars.jpl.nasa.gov/odyssey>.

*Photos top to bottom: lava-filled craters; canyon walls of Valles Marineris; dalmatian terrain close to south polar cap; and chaotic terrain in Masursky Crater. Detailed captions and the latest THEMIS mapping mission images are available at <http://themis.la.asu.edu/latest.html>*





## Passings

**ALFRED SIEGMETH**, 92, a former manager with the Deep Space Network, died May 25.

A native of Hungary, Siegmeth earned master's degrees from the Technical University in Budapest. He joined JPL in 1966, and served as the Deep Space Network manager for the Pioneer mission series.

Siegmeth earned NASA's Exceptional Service Medal for his contributions in support of Pioneer, and was also honored in 1997, along with NASA colleagues, at the Smithsonian Institute for his contributions to the mission.

He is survived by son Tom, daughters Eva Liske and Kathy Siegmeth, five grandchildren and nine great grandchildren.



Alfred Siegmeth

**GEORGE TENNANT**, 85, a retired JPL engineer, died May 27.

Tennant joined JPL in 1950 and initially was involved in JPL's work with wind tunnels. He later worked in the Space Science Division until his retirement in 1985.

He is survived by daughters Sharon Vilt, Sharlene Cartier and Shirley Beatty; seven grandchildren and 14 great grandchildren; and brother Ralph.



George Tennant

**HERBERT JEFFRIES**, 89, retired from Section 345, died May 22.

Jeffries joined JPL in 1955 and retired in 1979. He is survived by sons Steven, Keith and Gary.

Funeral services were held May 29 at Mountain View Cemetery in Altadena.

## Letters

Words cannot express how thankful I am to the whole JPL community, for all of your kind words, thoughts and prayers, over the loss of my wife, MaryAnn, and my son Jason.

Bob DeBusk

I wish to thank my friends and co-workers at IBS for their kindness and well wishes as I move on to the next step on my career path. I will be very fortunate to find a group as fine as you to work with in the future. I wish you all continued success.

Eugene DePrez

We would like to thank our JPL Family for their thoughts and prayers during the recent illness and passing of our father. Also to Organizations 272 and 5X for all their support during this difficult time.

Sincerely, Rigo and Marcos Falcon and families

Jim Kowalski, a senior engineer in Avionics Equipment Section (344), ran the Suzuki Rock'n'Roll Marathon in San Diego on Sunday, June 1. He ran for the American Stroke Association, raising over \$2,700 as part of the Training to End Stroke program. This was his 12th marathon and he finished the 26.2 mile course in 5 hours and 18 minutes. Thank you to JPLers who helped support this cause of stopping strokes.

Jim Kowalski

## Classifieds

### For Sale

AQUARIUM w/stand, 100 gal, glass, florescent light, \$25. 952-8163.

BASEBALL CARDS, Post Cereal sets from 1992-94, 30 cards/set, all 3 sets for \$25; 1990-91 baseball all stars playing cards, \$5 for both; 1995 5-card metal set of Michael Jordan, \$10, and about 200 miscellaneous basketball cards from early 1990s, \$5. 626/332-2682.

BASKETBALL GOAL, portable legal size, used for 3-4 months, black Huffy, \$125/obo; JUNIOR GOLF CLUB SET, complete w/case, used a couple of times, \$30/obo. 310/674-5338.

BATH TUBS/SINKS, turn-of-century, claw-foot, price to be negotiated. 626/577-5244.

BED and BEDDING, queen size mattress, box spring, frame, 3 yrs. old, 20-yr. warr., \$350; queen-sz. sheet set, mattress pad, and bed skirt all white, \$40/set; king size Duvet cover & matching chams Ikea \$25 set 626/449-8758

or rocketgal99@hotmail.com for pictures.

BICYCLE, women's Marin Larkspur hybrid, 15.5" frame, only ridden a few times, \$150. 626/793-2464.

CARD SHUFFLER, Johnson, collectible, all-metal construction w/the exception of friction wheels that drive cards & the carved-wood dowel handles, stands ~6" handle-high, & ~9" by 6", flanges & handle inclusive, \$35; PORT REPLICATOR for IBM Thinkpad, works w/T20, T21, A20, A21, or X, R series, like new, \$85; DIET TAPES, Jenny Craig, set of 14, \$50. 790-3899.

CLARINET, Yamaha Model YCL-20A, exc. cond., \$300/obo. 952-8455.

COFFEE TABLE, solid wood black Chinese, 45" diameter, round, carved on the sides, very elegant, \$260. 545-0455.

COMPUTER, Macintosh Ilci, 8MB RAM, 80MB HD, keyboard and mouse, system software 7.0.1, Apple Color StyleWriter 2400, Apple RGB 13" monitor, all cables included, whole package only for \$50. 626/446-6275. David.

COUCHES, 2, beautiful, both clean, like new, white satin, 94" long, \$320; matching love-seat, 70," \$230. 545-0455.

DAY BED, white enamel frame w/gold trim, twin mattress w/spring frame, \$90/obo. 970-8456, Steve.

DESK, oak rolltop, 54" l, good cond., \$450/obo. 951-3653.

DESK, for computer, white veneer, 66" long with 2 file drawers, supplies cabinet, and keyboard drawer, exc. cond., \$150. 790-5024.

DINING SET, 5-pc. maple, 48' round, incl. two 11" extension leafs and 4 armchairs. \$225. 248-2876.

DOG HOUSE, Dogloo XT for small dog, up to 45#, good cond., \$40. 626/303-1927.

DRESSER, large 9-drawer oak w/mirror from Eastman West, 64" long, 17" deep, 28" high; mirror 40" high, 28" wide, \$100; ROCKING CHAIR, beautiful, unique solid oak & wrought iron, cushioned back & seat, heavy, well-made piece, \$125; PHOTO ART, poster-sized mounted, framed, by Christine Fancher: Yosemite & Death Valley, \$25/ea.; everything in exc. cond., e-mail for pix: njfwalking@yahoo.com. 353-6369.

DRYER, electric, General Electric, heavy duty extra large capacity, five cycle automatic, in good condition, \$160/obo. 545-0455.

DVD PLAYER, progressive scan Toshiba SD-3750, like new, features: 3:2 digital cinema progressive conversion, enhanced audio mode/ dialogue expander, 540-line output, 4x digital picture zoom, CD/DVD text display for titled discs, plays audio CD/CD-R/CD-RW/DVD/video CD, cheapest price on web is \$199.95, sacrifice for \$100; ORGAN, Yamaha 415 electronic organ w/13 pedals, 3 keyboards, 144 rhythm patterns, \$2,000. 790-3899.

FITNESS EQUIPMENT: Soloflex home gym, w/ all attachments, butterfly, leg ext., dip bar, can be used with free weights also, includes resistance/weightstraps, \$400. 213/364-0552.

GOLF CLUB SET, Ping IST-K irons with graphite shafts 2, 4-9, SW, PW & Pure Spin LW, \$250 with golf bag; Ping IST titanium driver 10 degree, graphite shaft, \$200; all in excellent cond. 626/395-6620, Jeff.

GOLF SET, complete, left-handed, 9 irons (3-SW), 3 woods (1, 3 & 5) bag, balls, glove, covers, towel, jacket, tees, everything, \$225/obo. 805/403-9864, Ed.

HOT TUB, portable 6' Softub, maroon, good cond., \$500. 248-2931.

LAWN MOWER, McLane, 7-blade power reel-type, recent motor rebuild & resharpen, ugly but works, U transport from Magic Mountain area, \$20. 661/297-0219.

MOVING SALE: loveseat, reclining, brown, \$50; craft table, kid's, \$10; lamps, white halogen, \$5/ea.; other misc. items. 626/644-3453.

MOVING SALE, family relocating, selling variety of household & other items by end of June; incl. car, sofa bed, recliner, bookcases, chests of drawers; full list at <http://faculty.oxxy.edu/fmills>, all prices negotiable. 626/335-7640.

MOVING SALE: dining room table w/6 chairs, \$100; double bed w/headboard \$75; night-stand & lamp, \$25; garage storage rack (5 shelves), \$30; washer & dryer, \$100; combo microwave-convection oven, \$50. 626/795-5272, 687-9802.

MOVING SALE: nearly-new furn., vg cond.; all prices are obo; desk, pine 2-drawer, \$200; chairs, 2 cafe-style, black metal w/off-white cushions, \$80; TV/stereo cabinet, lg. teak, \$850; bookcases, 2 Bonde style, Ikea, cherry color, 14 x 86" & 28 x 86", \$275; end tables, 2 Indonesian teak w/iron details, \$130; tables, sm. bedside, wood w/drawer & shelf, \$225. 323/664-2672.

MOVING SALE: lamps, matched set of wood/brushed stainless art deco, 1 bedside, 2 table, 1 floor, 1 torchiere, \$150, or will sell separately; floor lamp, arch, oak and brass, adjustable extension, \$50; NordicTrack Pro X-C ski mach., w/workout computer, heart rate monitor, maint. kit & owner's manual, \$125; all in exc. cond., e-mail for pix: njfwalking@yahoo.com. 353-6369.

MOVING SALE: leather jacket, maroon, med., worn once, \$200 retail, sell \$75; ping pong set, includes net, paddles, and balls, \$5; dart board & darts, \$5; posters: Star Wars Episode IV, Orion Nebula w/Frame, \$5 each; Kid's Craft table, ~3' x 4', \$10. 626/449-8758 or rocketgal99@hotmail.com for pictures.

PDA, color, Handspring Visor, Palm OS, Visor-Phone cellphone and camera add-on modules, cradle synch charger, travel charger, headset, \$90. 653-7099.

PIANO, upright, Behning New York, built in 1923, good cond., \$1,100. 242-4402.

PIANO, antique upright, works great, sounds great, \$500. 909/982-4541.

PIANO, Yamaha upright, M305 model FPC, like new, sacrifice due to move, \$1,500/obo. 626/963-7612.

PIANO, digital, Kawai CN 370, full sz. 88 keys, weighted, looks and feels like real piano, only 2.5 yrs. old, like new, \$950. 626/449-1550.

SATELLITE DISH, RCA circular, with 2 receivers and 2 remote controls, 1.5 yrs. old, like new, all for \$99; BED FRAME, king-size, metal, never used, \$20. 909/606-8399.

SATELLITE RADIO, brand new Sirius system for car or boat, includes receiver, controller, FM modulator & antenna, + 12 mo. of service, \$150. 310/251-2486.

SAW, Sears radial arm, digital, \$125. 952-8163.

TABLES, 2, custom-designed rod iron, glass top, indoor/outdoor, \$1,500; COMPUTER DESK, \$100; OFFICE CHAIR, \$35/obo. 248-1102.

TEA SET, pottery, made by Maine artisan, nau-

tical theme, matching lighthouse design on all pieces, incl. tea pot, creamer, sugar, platter, small serving bowl, 2 mugs, 2 Japanese tea cups, never used, \$100/set. 249-4316.

TREADMILL, ProForm (Sears) #585, speed control, power incline, pulse rate, distance/speed/time indicators, exc. cond., \$300. 626/355-9723, Neil.

TOY CONSTRUCTION SET, Brio Mech Set 4, 152 pc. + work board, vg cond., original cost ~\$150, sell for \$60. 626/303-1927.

WAGON, Radio Flyer, wood, Town & Country model, \$40; VICTORIAN LIGHT FIXTURES, ornate w/ tulip shades, wall-mount: single, \$25; double light, \$35. 626/799-1271.

WASHER/DRYER, Maytag washer, white, and Maytag electric dryer, almond, both in good condition, \$125 each. 626/445-1013.

WASHER/DRYER, Kenmore, 80 series, Heavy Duty Plus washer, matching heavy duty gas dryer, almond, gd. cond., \$225/both; MICRO-WAVE, Sharp Carousel II, med. sz., touch pad, gd. cond., black front/white case, \$40. 626/798-9498.

WATERBED, king, complete, solid dark wood American Rose w/mirror & shelved headboard, 6 drawers underneath, up and operational w/mattress heater, \$275/obo. 310/674-5338.

WEDDING GOWN, new, strapless, Ines Di Santo, never been worn or altered, ivory with intricate beading that lines the very top of the neckline and the train, sz. 10 European (sz. 5-6 American), retails for over \$3,650 at Renee Strauss & Mon Amie. 310/308-7822.

WEDDING GOWN, never been worn, breath-taking, white sleeveless, size 8, detachable train, veil and petticoat, paid \$800, sell \$450/obo. 310/980-9670, Jennifer.

WEDDING GOWN, white duchess satin sheath by Amsale, low back, gorgeous detachable train, fit ~size 2-4, elbow length white tulle veil, \$1,000 for set/obo; FIGURINE, Lenox porcelain, bride & groom "wedding cake topper," 7," never used, original box, wonderful wedding gift, \$50. 249-4316.

### Vehicles / Accessories

'96 BMW 328i, white w/light gray int., 4-dr automatic, a/c dual temp. controls, pwr. alarm/keyless entry/seats/moonroof/windows/maintenance/trip onboard computer, sport package w/upgraded wheels, very clean, super cond. in/out, 90K mi., \$11,450/obo. 661/294-3857.

'99 CHEVROLET Tracker, 4wd, 46,000 miles, new all weather tires, great snow car, \$8,000. 909/338-0225 or jhuff2536@aol.com.

'80 DATSUN (NISSAN) 280ZX coupe, 5-spd. manual, blue/silver, GL package, 139,000 miles, generally gd. cond. but needs some work, orig. owner, best offer. 626/577-8107.

'00 FORD Taurus LX, exc. cond., white, new tires, brakes, lease return, 120,000 mi., \$5,100. 626/379-3503.

'99 FORD Explorer XLT, red, V8, perfect cond., leather int., loaded, 66,000 mi., \$13,200. 626/580-3330.

'98 FORD Crown Victoria LX, 4.6L V8, 4 door, white/beige, leather, CD, keyless entry (remote and keypad), cruise, pwr. everything, 100K, split front seats, good cond., \$11,500. 822-6465, Ryan or code3media@crownvic.net.

'96 FORD Windstar GL, green, 58K miles, good cond., \$5,500/obo. 626/836-4767.

'92 FORD Crown Victoria LX sedan V8, 4.6L, AT, all power, a/c, dual exhaust, pwr. seats, AM/FM/cassette, cruise, tilt, ABS, lt. blue, dk. blue int., cloth seats, new brakes and water pump, \$3,000/obo. 248-8283.

'90 FORD Probe GT, red, 156,000 mi., 5 spd., turbo, ABS, pwr. drs. & win., cruise, trip comp., runs great, very clean, \$1,500/obo. 626/676-7678.

'87 FORD F150, V8, 5.0, a/c, pwr. everything, auto., cruise control, long bedliner, tow ball, HD springs, runs OK, \$2,500/obo. 951-3653.

'66 FORD Econoline van, original owner leaving area, runs good, \$985/obo; air compressor, \$25. 626/285-8647.

HOBBIE CAT sailboat, 16 ft., price to be negotiated. 626/577-5244.

'02 HONDA Elite 80 motor scooter, 1K mi, like new, 90 mpg, fun & easy to ride, park on Lab, \$2,200 new; now \$1,800. 249-4561.

'88 JEEP Cherokee Chief, red, 4WD, clean interior/exterior, 30,000 mi. on eng., transmission and transfer case, \$2,800. 626/359-7666.

'85 KOUNTRY LITE 5th wheel trailer, 30 ft., orig. owner, alum. frame, 13.5K btu a/c, side bath, microwave, new tires & water pump, sleeps 6, exc. cond., kitchen equip. included, \$5,300/obo. 626/963-5727.

'95 NISSAN Pathfinder XE, 4 X 4, V6, tow pkg., a/c, PS, PW, PDL, tilt, cruise, roof rack, running boards, LoJack, 135K mi., \$5,900. 909/596-9007.

'95 NISSAN Quest van, 140K mi., loaded, gd. transprt'n, vg cond., \$4,000. 323/771-0701.

'69 OLDSMOBILE Cutlass convertible, classic "muscle car," pwr. steering/windows, orig. Delco AM radio, new top, interior, too many items to mention, red with black interior, see and drive. 952-1538, tlynych41@aol.com.

'01 PACE ARROW 34-foot RV, queen bed/sofa bed/dinette bed, monthly rentals only, \$4,000 in advance + \$1,000 security deposit, you pay insur. + gas, JPL empl. only, no smoking or pets. tahoeimike@earthlink.net, 530/525-7334.

'87 PORSCHE wheels/rims, 4, 930, 9" rears/7" fronts, superb cond., \$1,500/all four. 714/390-5616.

RIMS, Kinesis K28, 18 inch with Pirelli tires off BMW M3, practically brand new, originally bought from Spewell Racing. 626/488-4764.

'98 TOYOTA Corolla LE, midnight blue, great cond., 80K mi., a/c, power doors and windows, side air bags, \$7,000/obo. 626/335-7640.

'74 VOLKSWAGEN Bug, really gd cond., high perf. 1600 eng., 26 MPG city, new tires, needs no work, \$2,800. 626/791-3797, Dennis.

'89 VOLVO 740 turbo wagon, 170,000 mi., exc. cond., manicured by JK Volvo, Pasadena, maroon, \$4,500. 790-8947.

### Wanted

NOVELTY CIGARETTE LIGHTERS, especially occupied Japan, no Zippos or flats please. 909/593-4413, Greg.

PING PONG PLAYERS, who want to play recreational doubles near JPL in La Canada. 790-7813, Toni.

PUNCHING BAG for raucous teenager. 626/794-0081 Ronnie

SPACE INFORMATION/memorabilia from U.S. & other countries, past & present, for personal use. 790-8523, Marc Rayman.

### Free

DOG, miniature pincher, female, trained. 661/270-1169.

GRASS, St. Augustine, very healthy organically grown sod, dig it up, leave no mess. 626/794-9470, Nancy or bigcatlovrr@aol.com.

### For Rent

ALTADENA, quiet & lovely area near Farnsworth Park, spacious 3 bd., 2 ba. home w/2 fireplaces and an oversized den, kitchen & baths have Boliviar slate floors & tile, kitchen opens to den for great entertaining while preparing your special meals, cozy backyard, must see, \$2,500. 323/684-2508, Oren.

ARCADIA apt, 2 bd. + den, 1 ba., garage, remodeled, refrigerator/washer/dryer in unit, a/c, dishwasher; spacious, walking distance to shops, excellent neighborhood, water/gardener/trash included, \$1,350. 626/576-7333.

BALDWIN PARK, share beautiful 3 bd. condo, furn. rooms, quiet neighbrh'd, gated community, close to shopping center, nice area, low deposit, non-smoking a must, no drugs, responsible, avail. 8/1, \$700 + 1/3 util. 626/327-2155.

BURBANK, 3 bd., 1 ba. w/gar., priv. backyard, walk to shopping, schools, exc. neighborhood, remodeled kitch., hardwd. floors, f/p, c/a, gardener paid, \$2,150. 952-1538, tlynych41@aol.com.

GLENDALE, townhome-like duplex, 2 bd., 1.5 ba, din. rm., liv. rm., priv. patio, marble flr., family neighborhd., close to JPL. 246-7365, Rose.

GLENDALE, house, 3 bd., 1 ba., din. rm., liv. rm., private patio & garden, family neighborhd., close to JPL. 246-7365, Rose.

LA CANADA, 1 bd., off-st. parking for 1 car, ~2 mi./JPL, tennis court access, water/gardener/trash included, no pets, \$980. 952-1304.

TUJUNGA, sm. 1-bd. guesthouse, on secure and private 3/4 acre w/lg. trees and city/mtn. view, 15 min. from JPL, has storage, W/D, rose garden, patio, fruit trees, and carport, \$875 incl. util. 952-7980, Ann.

PASADENA, large 3 bd., 2.5 ba., 2-story townhome, lg. kitchen, patio, vaulted ceilings, fireplace, carpeted liv. rm., cent. air/heat, fridge/washer/dryer in-unit, quiet, water, trash, and landscaping incl., assoc. pool, hot tub and sauna, close to JPL & Caltech, walking dist. to Old Town/Gold Line/Metro, partially furnished, avail. 9/1, \$2,000. 626/644-5699, Lucas.

PASADENA, spacious 2-story condo, 3 bd., 2.5 ba., prestigious community, beauty. inter., bright kitch., prof. landscape, ctrl. air & heat, close to shop., cozy LR w/FP, end unit, frml DR, hwd. flrs., immac. cond., close to schls. \$1,750. 626/396-9024.

PASADENA, nice home in Upper Hastings Ranch, 3 bd., den, 2 ba., with pool, spa large yard, overlooking golf course, remodeled kitchen and baths, central air and heat, washer/dryer, refrigerator, two fireplaces, 1-year lease required, avail. 6/28, \$3,200 includes gardener and pool service. 626/351-9641.

SAN MARINO house, 3 bd., 2 ba, 2-car gar. w/automatic opener, newly painted, remodeled kitchen, dishwasher, a/c, laundry hookups, fireplace, spacious family rm. overlooks yard, exc. neighborhood & school district, water/gardener included, \$2,850. 626/576-7333.

SIERRA MADRE townhouse to share with Caltech alumna, 1,000 sq. ft. apt., lg. patio, 2 bd., 1.5 ba., quiet st., garage parking, washer/dryer \$605 + 1/2 utils. 626/355-4838, Heather.

SYLMAR, 4 bd., 3.5 ba., plus den and bonus room, community pool, near golf course and mtns., rent to own, \$10K credit after 1 year, 2,500 sq. ft., \$2,395. 626/584-6526, Fred.

VALENCIA, 3 bd., 2.5 ba., 2 story, w/attached 2-car garage, backyard w/patio, a/c, laundry hookup, Valencia schools, association pool, homeowners dues and gardener included, no pets, \$1,550 + security. 661/255-8676.

### Real Estate

MT. WASHINGTON house, next to Glendale/Pasadena/Eagle Rock/Occidental College, 2,000 sq. ft., lg. custom 3 bd., 2.5 ba., 2-car gar., lots of storage, exc. Mt. Washington elem. school, 12 min./JPL, canyon view, quiet neighborhood, avail. summer 2003, ask for JPL discount, \$450,000. 626/403-0446.

TUJUNGA, artist retreat, 2 bd., 1 ba., huge lot, semi-rural, RV parking, 20 min. to JPL, \$315,000. 951-8067.

### Vacation Rentals

BALBOA ISLAND, cute beach apt., fully furn. 2 bd., 1 ba., patio, washer/dryer, parking, slps 5, steps to bay, avail. weekly July & Aug, \$1,200-\$1,500/wk depending on week. 626/351-9641.

BIG BEAR LAKEFRONT, luxury townhome, 2 decks, tennis, pool/spa, beautiful master bd. suite, sleeps 6. 949/786-6548.

CAMBRIA, ocean front house, sleeps up to 4, excellent view. 248-1102.

HAWAII, Maui condo, NW coast, ocean front view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn. phone, color TV, VCR, microwave, d/w, pool, priv. lanai, slps 4, laundry fac., Low Season rate \$105/nite/2, High Season rate \$120/nite/2, \$15/nite/add'l person. 949/348-8047, or jackandrandy@cox.net.

MAMMOTH, Snowcreek, 2 bd., 2 ba., +loft, sleeps 6-8, fully eq'p'd kitch. incl. microwave, D/W, cable TV, VCR, phone, balcony w/mtn. vw. Jacz., sauna, streams, fishponds, close to Mammoth Creek, JPL disc. 626/798-9222 or 626/794-0455 or valerie@gps.caltech.edu.

OCEANSIDE condo, fully furn., 2 bd., 2 ba., fireplace, full kitch., quiet, relaxing, beautiful beachside setting; BBQ, pool, spa, gm. rm., great ocean vw.; easy walk to pier &amp